ESI Technology Ltd

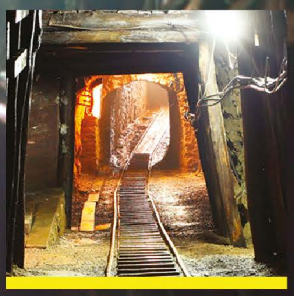
Intrinsically Safe Pressure Transducers and Transmitters











Putting safety first in explosive environments

Our range of Ex certified pressure transmitters have both ATEX and IECEx approval.

ATEX is an EU Directive (94/9/EC) that ensures products are safe to use in explosive environments.

IECEx scheme certifies worldwide conformity to international standards and provides assurance that equipment for use in explosive atmospheres are manufactured and operated according to the highest International Standards of safety.

The most common protection method for process instrumentation is Intrinsic Safety (IS) and this is the protection method used in ESI transmitters. With these instruments the low voltage electronics is designed in such a way that it is incapable of releasing enough energy thermally or electrically to cause an ignition of flammable gases or liquids. To achieve this there are limitations set on levels of voltage, current, capacitance and inductance such that the available energy at a sparking device is below the minimum ignition energy of the potentially explosive atmosphere.

Intrinsic safety equipment must undergo Type Examination by an approved third party. It involves a detailed process of examination, testing and assessment of equipment confirming and demonstrating that the product is safe to use within potentially explosive atmospheres. The certification process must be undertaken by a Notified Body.

Our EX Certification

ESI has an extensive range of intrinsically safe transmitters, all ATEX and IECEx approved **for explosion protection for flammable gases (zone 0), dusts (zone 20) and mining areas (group I M1).**

Technical Marking:

II 1 G Ex ia IIC T4 Ga
II 1 D Ex ia IIIC T135°C Da
I M 1 Ex ia I Ma

Safety Description

Explosion protection for flammable gases **(Zone 0)**, dusts **(Zone 20)** and mining areas **(Group I M1)** is by intrinsic safety alone **("ia")** and the pressure transmitters have the following safety description (note the different Ci value for different models):

Ui = 28V
Ii = 119mA
Pi = 0.65W
Li = 0.1µH

Applying standards: **ATEX** : EN 60079-0:2012, EN 60079-11:2012 EN 60079-26:2007 ATEX EN 50303:2000 Mining

IECEX : IEC 60079-0:2011 IEC 60079-11: 2011-6 IEC 60079-26: 2006

Standards

Our customers expect high performance from their ESI product. Achieving this requires flawless execution across the entire supply chain. From design and sourcing quality components through to shipment, our quality control and inspection procedures ensure that each and every unit that leaves our premises conforms to the highest standards. We operate to a Quality Management System approved to ISO 9001:2008 and ISO/IEC 80079-34:2011. We also conform to aerospace and military standards.

Product Conditioning

At ESI we understand the difficulties faced by equipment manufacturers and the requirement to provide products that have been pre-conditioned to suit the working environment. We have developed comprehensive test facilities to enable us to offer Environmental Stress Screening (ESS) and Hyperbaric testing to 4000 metres depth.

SOS Technology

Unbeatable performance, high accuracy, excellent chemical compatibility

Silicon-on-Sapphire sensor technology has redefined the performance capability of ESI products.

The outstanding elastic properties of the sapphire substrate provide the perfect platform on which to create a pressure sensor with no measurable hysteresis and superb repeatability.

The measurement sensitive element consists of a silicon piezoresistive strain gauge microcircuit. The single crystal silicon forms a strong molecular bond to a sapphire substrate which is joined to a robust titanium alloy pressure diaphragm through a high temperature diffusion process. The excellent insulation properties of the sapphire allow the sensor to operate over a very wide temperature range without loss of performance.

Combined with all titanium wetted parts, this sensor offers unbeatable performance with high over pressures and excellent chemical compatibility.

SOS Technology features extensively throughout the ESI portfolio.

Customer Service

Our objective is to create close working partnerships with our customers. Our dedicated sales team strive to understand your application by closely listening to your requirements in order to advise you promptly and accurately on the ideal solution.

Global

A significant proportion of our sales are exports, so it is imperative that we have clear communication channels with the rest of the world. The development and extension of our sales network shows a thriving enterprise and we now have more than 45 sales partners across 41 countries.

ESI Technology Ltd

Product Range

Genspec GS4200

General Purpose Pressure Transmitter

- Silicon-on-Sapphire sensor technology for outstanding performance
- Pressure ranges to 1,500 bar
- Unblemished track record of reliability
- Excellent corrosion resistance
- High strength titanium pressure port
- High resistance to overpressure and pressure transients
- ATEX/IECEx option available (includes M1 for mining applications)
- DNV GL certification available

Hispec HI2000 Series

High Precision Pressure Transducer

- High accuracy and performance
- Silicon-on-Sapphire sensor technology for outstanding stability
- Pressure ranges to 1,500 bar
- Titanium wetted parts for excellent chemical compatibility
- High thermal stability over wide operating temperature
- ATEX/IECEx option available (includes M1 for mining applications)
- TEDS Version available

Hipres© HP1000

High Pressure Transmitter

- Pressure ranges to 5,000 bar
- High pressure integrity for safe use due to unique sensor design
- Pressure diaphragm and process connection is machined from one piece of Titanium with no seals or welds
- High resistance to overpressure and pressure transients
- Silicon-on-Sapphire (SOS) sensor technology for outstanding performance and reliability
- ATEX/IECEx option available (includes M1 for mining applications)

Protran PR3100

Standard Pressure Transmitter

- Suitable for the majority of industrial applications
- Pressure ranges available from 0-2.5 bar to 0-1,000 bar
- Reliable pressure measurement
- Long service life
- Robust yet compact designs
- ATEX/IECEx option available, including M1 for mining applications

Protran PR3110EX

Hazardous Area Pressure Transmitter

- ATEX and IECEx certified
- Designed for operation in zone 0, zone 20 and M1 mining
- Wide choice of low pressure ranges from 0-100 mbar
- Available in Absolute and Gauge reference
- Ideal for low pressure fluid and gas applications
- DNV GL certification available

Protran PR3200

Differential Pressure Transmitter

- Wide range of pressure ranges to 200 bar DP
- WET/WET or DRY/DRY operation
- Available for gauge reference or bi-directional measurement
- Durable designs for industrial and commercial installations
- R.F.I. SHIELDED for protection against electromagnetic radiation
- ATEX/IECEx option available (includes M1 for mining applications)

Our wide range of pressure transducers and transmitters incorporate the superior Silicon-on-Sapphire sensor technology to make one of the most advanced ranges available on the market.

Protran PR3202
Low Pressure Differential Transmitter

- Wide range of low pressure ranges from 0-5 mbar
- Available for gauge reference or bi-directional measurement
- Durable designs for industrial and commercial installations
- ATEX/IECEx option available (includes M1 for mining applications)

Protran PR3441
Submersible Depth/Level Pressure Transmitter

- Piezoresistive sensor technology for excellent stability and repeatability
- Robust stainless steel construction
- Pressure ranges available from 0-1 mWG
- strength, moulded cable for protection against ingress
- ATEX/IECEx option available (includes M1 for mining applications)
- DNV GL certification available

Protran PR3800 Series
Flush Diaphragm Pressure Transmitter

- Easy clean flush membrane to prevent clogging
- Thick film sensor technology for long service life
- Pressure ranges to 40 bar
- Range of sanitary grade pressure fittings
- ATEX/IECEx option available (includes M1 for mining applications

Protran PR3850
Flush Diaphragm Pressure Transmitter

- Easy clean flush membrane to prevent clogging
- Thick film sensor technology for long service life
- Pressure ranges to 400 bar
- Integral O-ring seal to ensure flush pressure seal
- ATEX/IECEx option available (includes M1 for mining applications)

Protran PR3860
High Temperature Pressure Transmitter

- High operating temperatures of up to 250 °C
- Easy clean flush membrane to prevent clogging
- Thick film sensor technology for long service life
- Pressure ranges to 400 bar
- Good chemical compatibility for a range of applications
- Integral O-ring seal option to ensure flush pressure seal
- ATEX/IECEx option available (includes M1 for mining applications)

Protran PR3900
Hazardous Area Pressure Transmitter

- ATEX and IECEx certified
- Designed for operation in zone 0, zone 20 and M1 mining
- Wide choice of pressure ranges from 0-10 bar to 0-1,500 bar
- NACE corrosion resistant materials
- Rugged, weatherproof design
- DNV GL certification available

To view our complete portfolio please visit **www.esi-tec.com**

Protran PR3913
Control Valve Pressure Transmitter

- Silicon-on-Sapphire sensor technology for outstanding performance
- Submersion to 3,000 mtrs sea level
- Pressure ranges available to 1,000 bar
- High accuracy option
- Hyperbaric testing to 3,300 m depth
- Environmental Stress Screening (ESS Testing)
- Suitable for ROV and deep sea test equipment
- Comprehensive documentation package and certification
- ATEX/IECEx option available (includes M1 for mining applications)

Protran PR3920
Subsea Differential Pressure Transmitter

- Silicon-on-Sapphire sensor technology for outstanding performance
- Standard sensing range 0-50 bar DP
- 690bar line pressure
- 1200bar secondary containment
- Submersion to 3,000 mtrs sea level
- High accuracy option
- NACE corrosion resistance
- ATEX/IECEx option available (includes M1 for mining applications)

Protran PR9000
Heavy Duty Pressure Transmitter

- Silicon-on-Sapphire sensor technology for outstanding performance and reliability
- Pressure ranges up to 1,500 bar
- All stainless steel, robust construction for harsh environments
- Wetted parts in various materials
- ATEX/IECEx option available, including M1 for mining applications

Using an Intrinsically Safe Barrier

The essential concept behind intrinsic safety is the restriction of electrical energy to apparatus and the interconnecting wiring exposed to the potentially explosive atmosphere to a level than will not cause ignition by either sparking or heating effects.

It is therefore a low-energy signalling technique that prevents explosions from occurring by ensuring that the energy transferred to a hazardous area is well below the energy required to initiate an explosion. This is achieved by limiting the electrical energy transferred to a hazardous area through the use of an Intrinsic Safety Barrier situated in a safe area .

Intrinsic Safety Barriers provide both power and signal isolation. A safety barrier is used between the "safe area" and the "hazardous area" so that any fault that generates a high energy level would not get carried over to the hazardous area.

Contact the sales team or more information
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RoHS 2011/65/EU

Hazardous Zone Classification

Hazardous areas are classified into zones

(0, 1, 2 for gas-vapour-mist and 20, 21, 22 for dust)

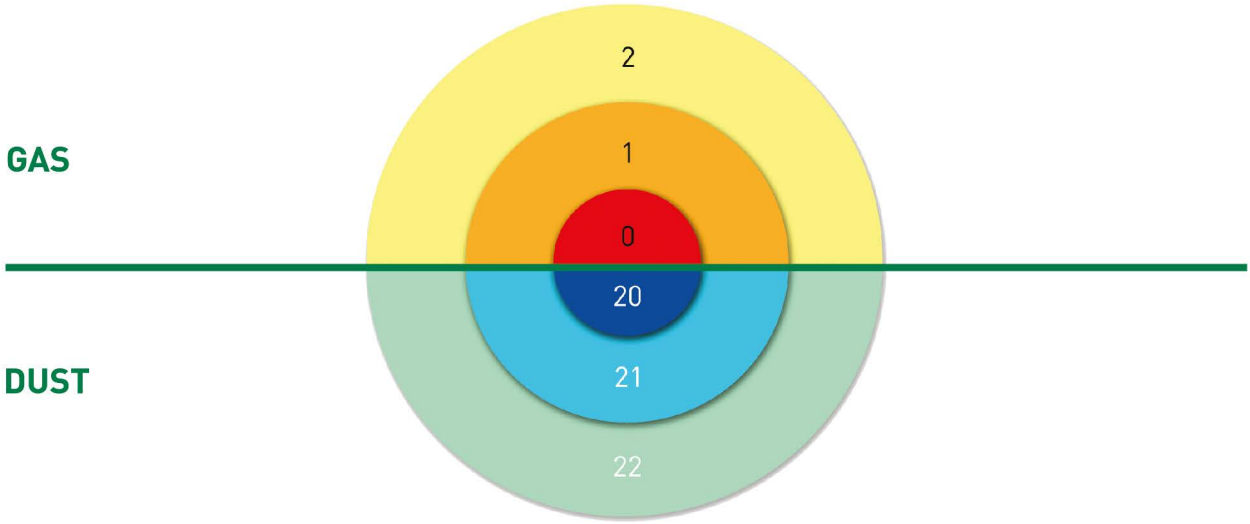
The zones are determined by the type of combustible material present, the length of time it is present, and the physical construction of the area where such material is present.

Zone 0 or 20 are those areas where ignitable or flammable concentrations of combustible gases or dusts exist continuously or for long periods of time.

Zone 1 or 21 are those areas where ignitable or flammable concentrations of combustible gases or dusts are likely to or frequently exist during normal operations.

Zone 2 or 22 are those areas where ignitable or flammable concentrations of combustible gases or dusts are not likely to occur during normal operations or will exist for only a brief period of time.

Zone 0 and 20 require Category 1 marked equipment, Zone 1 and 21 require Category 1 or 2 marked equipment and Zone 2 and 22 require Category 1, 2, or 3 marked equipment. Zone 0 and 20 are the zones with the highest risk of an explosive atmosphere being present.



About us

Since our establishment in the 1980's, ESI Technology Ltd has been at the heart of the pressure measurement industry, specialising in the design and manufacture of pressure transducers and pressure transmitters.

Our focus has been on specialist applications using state-of-the-art sensing technologies including the innovative Silicon-on-Sapphire strain gauge. Due to our expertise in such a niche field, the team are able to analyse and interpret customer specific requirements and create a product that meets, and more often than not exceeds, the exact needs of the application in order to eradicate any compromise from the customer.

Our portfolio boasts solutions for applications:

- Oil & Gas
- Subsea
- Marine
- Aerospace
- Defence
- Hydraulics
- Depth & Level
- Hazardous Area
- Automotive
- Process & Industrial
- Clean Rooms
- Test Calibration
- OEM Markets

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